

N.O.T.E.S.

**Старший научный сотрудник ПНИЛ хирургической гастроэнтерологии и эндоскопии
(Зав. лаб., член-корр. РАМН, проф. Панцырев Ю.М.), Кафедра госпитальной хирургии
№ 2 (зав. каф., проф. Шаповальянц С.Г.), Городская клиническая больница № 31 (глав.
врач, член-корр. РАМН, проф. Голухов Г.Н.),
Российский Государственный Медицинский Университет,
хирург-эндоскопист Тимофеев Михаил Евгеньевич**



**Краткий фото отчет о N.O.T.E.S.
технологиях на 11-ом
ВСЕМИРНОМ КОНГРЕССЕ ПО
ЭНДОСКОПИЧЕСКОЙ ХИРУРГИИ,
11-th WORLD CONGRESS OF
ENDOSCOPIC SURGERY (WCES)
YOKOHAMA, JAPAN,
September 2 – 5, 2008**

И Д Е Я

В этой презентации сконцентрирована
БОЛЬШАЯ ЭНЕРГЕТИКА МИРОВОЙ НАУКИ в
N.O.T.E.S. направлении,

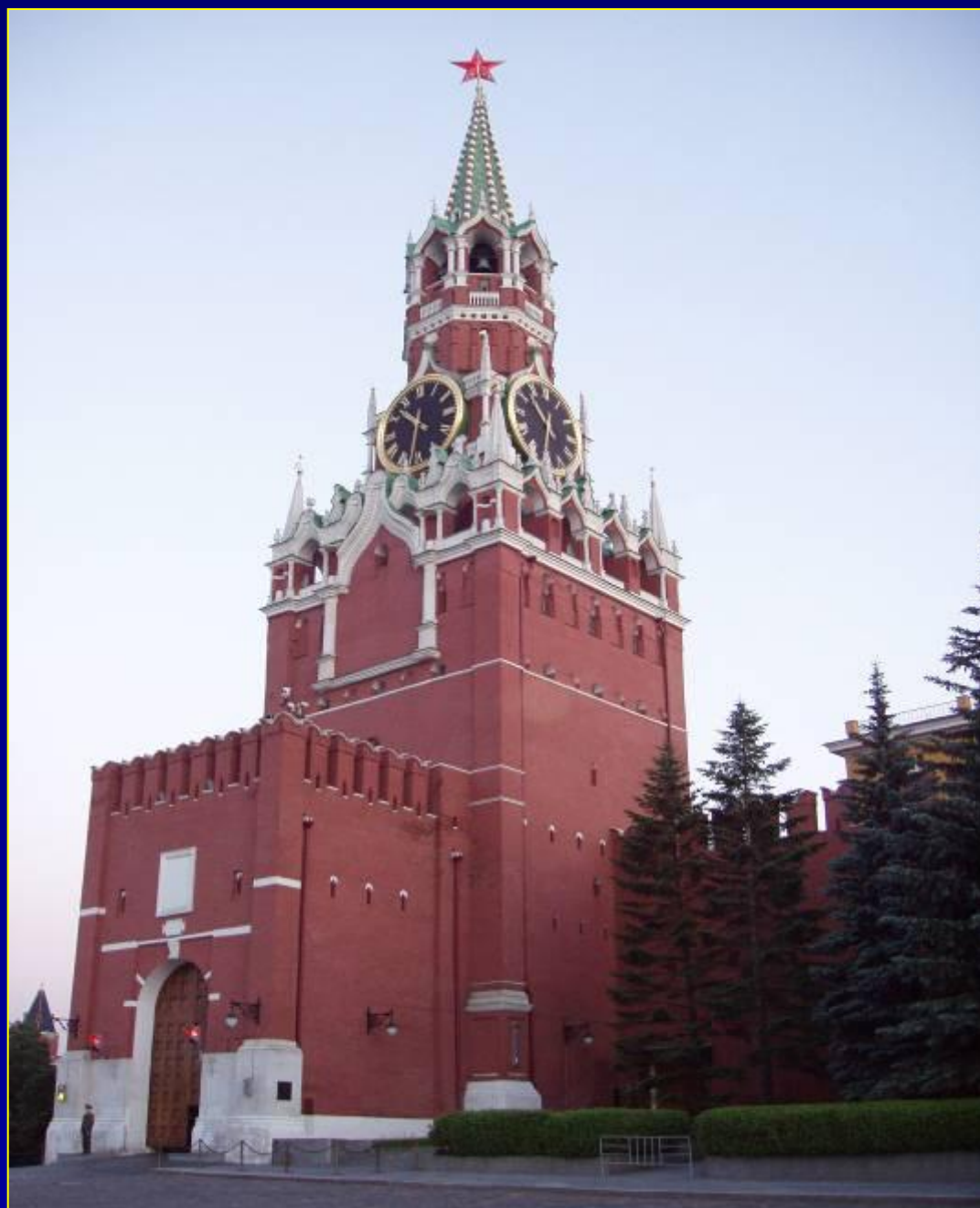
так как она создана на материале ведущих
специалистов в этой области, включая их
доклады и слайды, обсуждения в зале и
кулуарах, мечты о совершенствовании
эндоскопических технологий и ***укреплении***
статуса

ВРАЧА – ЭНДСКОПИСТА...,
О ВЫЗДОРОВЛЕНИИ ПАЦИЕНТОВ С
МИНИМАЛЬНЫМИ ЗАТРАТАМИ *ИХ* ЗДОРОВЬЯ
НА ЭТО...

**БОЛЬШОЕ СПАСИБО !
ЗА ПОЗНАНИЕ И ПОНИМАНИЕ
N.O.T.E.S. ТЕХНОЛОГИЙ**

**ВАТАРУ ТАКАХАШИ
ЕМЕЛЬЯНОВУ С.И.
ИЗУМИ КАДОЯ
КАЗАКУ С.М.
ЛУЦЕВИЧУ О.И.
МИТРОФАНОВУ Д.О.
НЕХЗЕР А.А.
СТАРКОВУ Ю.Г.
ФЕДОРОВУ А.В.
ФЕДОРОВУ Е.Д.
ШИШИНУ К.В.**

СОВМЕСТНЫЙ ПЕРЕЛЕТ ИЗ СТОЛИЦЫ НАШЕЙ РОДИНЫ - МОСКВЫ



В ...

ЯПОНИЮ ...



11-th WORLD CONGRESS OF ENDOSCOPIC SURGERY (WCES) YOKOHAMA, JAPAN, September 2 – 5, 2008



ВЫСТАВОЧНЫЙ КОМПЛЕКС



КОНФЕРЦ. ХОЛЛ

РОССИЙСКАЯ ДЕЛЕГАЦИЯ 11-го КОНГРЕССА НА СЕМИНАРЕ В ЦЕНТРАЛЬНОМ ОФИСЕ OLYMPUS г. ТОКИО



T



СЕМИНАР ПО НОВЫМ ТЕХНОЛОГИЯМ В ЦЕНТРАЛЬНОМ ОФИСЕ OLYMPUS г. ТОКИО



ПОЛНОЦЕННЫЙ СПЕКТР СОВРЕМЕННОЙ ЭНДОСКОПИЧЕСКОГО ОБОРУДОВАНИЯ ФИРМЫ OLYMPUS

From Imaging Equipment to Therapeutic Devices, Olympus Has Created a Wide Range of Leading-Edge Technologies to Support Minimally Invasive Procedures in Both Endoscopy and Laparoscopy

Surgery/Laparoscopy Technologies

HDTV "Chip-on-the-Tip"

In addition to gastro-laparoscopy, HDTV endoscopes, as you offer a variety of HDTV laparoscopes to suit different endoscopic procedures and surgeons.



Autoclavable Deflectable Tip Design

We now offer a fully autoclavable deflectable tip endoscope in addition to the autoclavable deflectable tip. Its scope's integrated light guide cable and connector are also autoclavable.

Automatic Smoke/Mist Evacuation Control

Evacuating smoke and mist by interlocking with the energy output and automatically returns the intra-abdominal pressure to the preset value.



Variable Optic Positioning and Stabilization

Allows you to view the endoscope as easily as if in a gravity-free environment and securely stabilize it in precisely the position required.



The technologies that can be seen here are already seeing use in practical applications. But there's much more to come. Right now, we are working hard to develop a host of new products that we hope to make available in the near future.

Bipolar Energy Control

Various devices are available to suit different applications, providing effective control over energy output.



Ultrasonic Energy Tip Design

The tips of our ultrasonic energy devices are designed to include the characteristic shape of energy output that are well-suited for the application.



Wire Manipulation

Wires incorporated in the insertion tube provide operable control over the flexibility to curves allowing you to form a variety of complex shapes and bend the tip in many different directions.



Endoscopy Technologies

Wireless Capsule Endoscopy

Offers high image quality, real-time viewing, and ease of use.



ESD Devices

An innovative assortment of knives with a variety of shapes suitable for circumferential excision and submucosal dissection.



Flexible Hemostatic Devices

A comprehensive range of hemostatic devices including clips, grasping coagulating forceps, bipolar forceps, needles and loops to undertake



Variable Stiffness Insertion Tube

The flexibility of endoscope insertion tubes can be adjusted.



Image Enhancement by Optical-Digital Method

Olympus offers a variety of technologies to view on images under the surface mucosa such as Narrow Band Imaging, Auto-Focus, contrast imaging, and True-Flat Imaging.



3D Display of Flexible Scope Configuration

Displays a real-time 3D view of the posture of the flexible endoscope using electromagnetic measurement coils built into the root of tube.



Hemostatic Devices

A comprehensive range of hemostatic devices including clips, grasping coagulating forceps, bipolar forceps, needles and loops to undertake

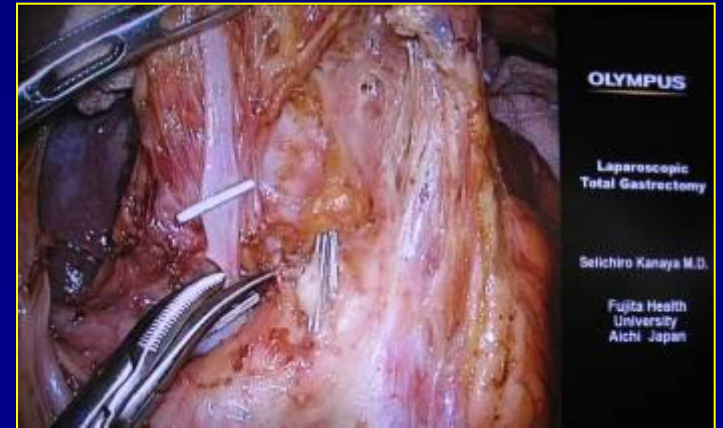
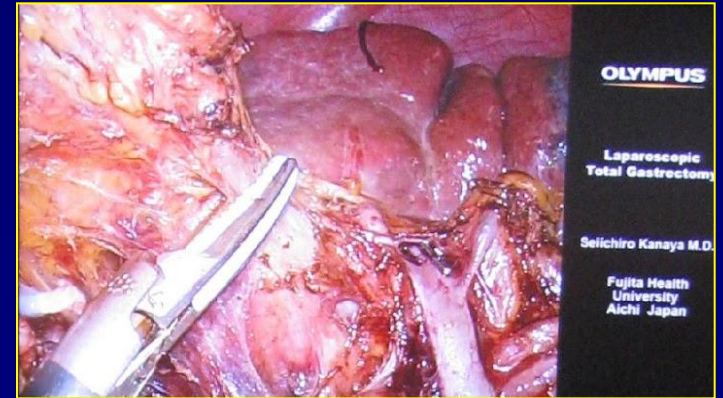


Endoscopic Ultrasonography

Various images of endoluminal structures including echotomography, echodoppler, and elastography. Various endoscopic ultrasonography probes are available.



HD VIDEO LAPAROSCOPE and HD ENDOSCOPE

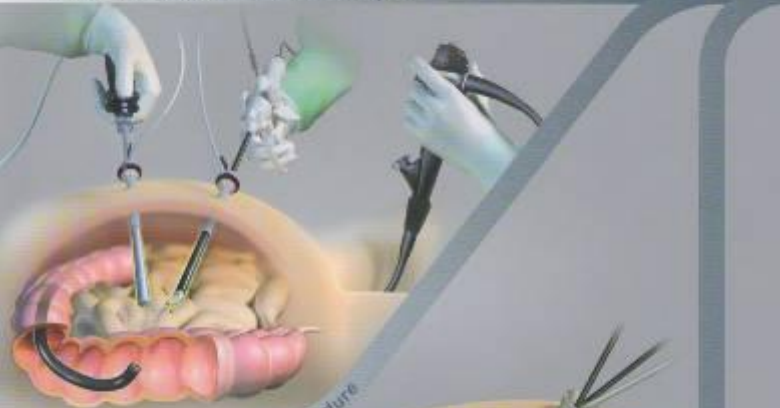


СЛИЯНИЕ ТЕХНОЛОГИЙ

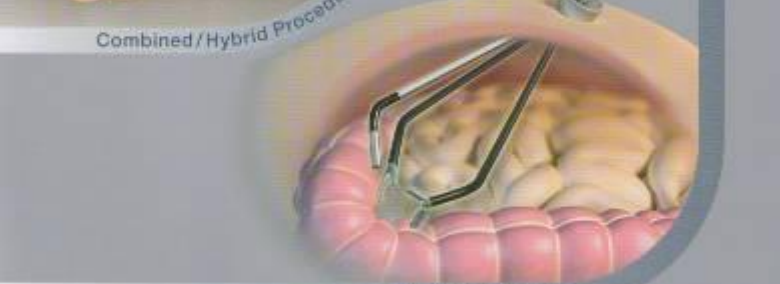
By Contributing to the Development of New Techniques Like Single Port Access, Combined/Hybrid, and Endolumenal/Incisionless Techniques, Olympus Is Forging the Era of Future MIS

The future of MIS has already begun. With the introduction of new techniques, endoscopic surgery is opening up new vistas and challenging traditional concepts of surgery. Olympus' role is to help consolidate those advances and provide doctors with the tools they need to take future MIS to the next level.

Endolumenal/Incisionless Technique



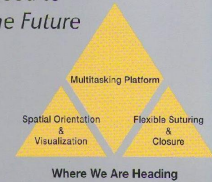
Combined/Hybrid Procedure



Single Port Access

We Are Committed to Developing the Tools You Need to Facilitate New Minimally Invasive Techniques in the Future

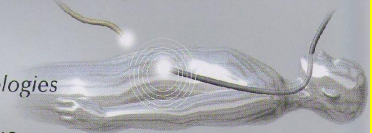
Among the wide array of products we're developing, our focus is on developing devices that will provide the basis for a multitasking platform, support spatial orientation and visualization, and offer flexible suturing and closure.



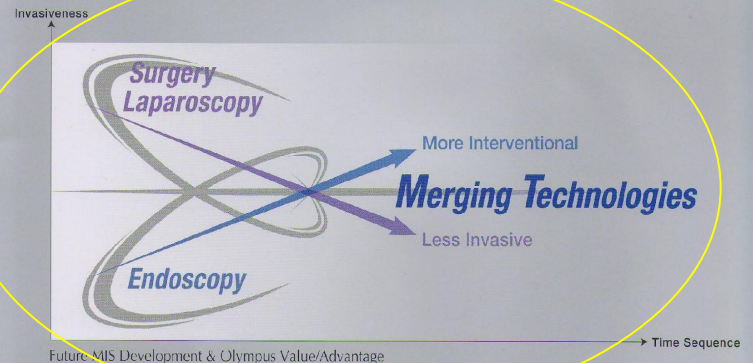
Evolution

Future MIS

We Are Merging Our Diverse Technologies into New Value-Added Products That Are Helping Establish Future MIS



At Olympus, we have the technology and the experience to offer a solution that merges technologies to make laparoscopy less invasive and endoscopy more interventional, thus fulfilling the true potential of future MIS.



Future MIS Development & Olympus Value/Advantage

ЭВОЛЮЦИЯ ХИРУРГИЧЕСКОГО ДОСТУПА

Традиционный
доступ
лапаротомия



Малотравматичный доступ
минилапаротомия



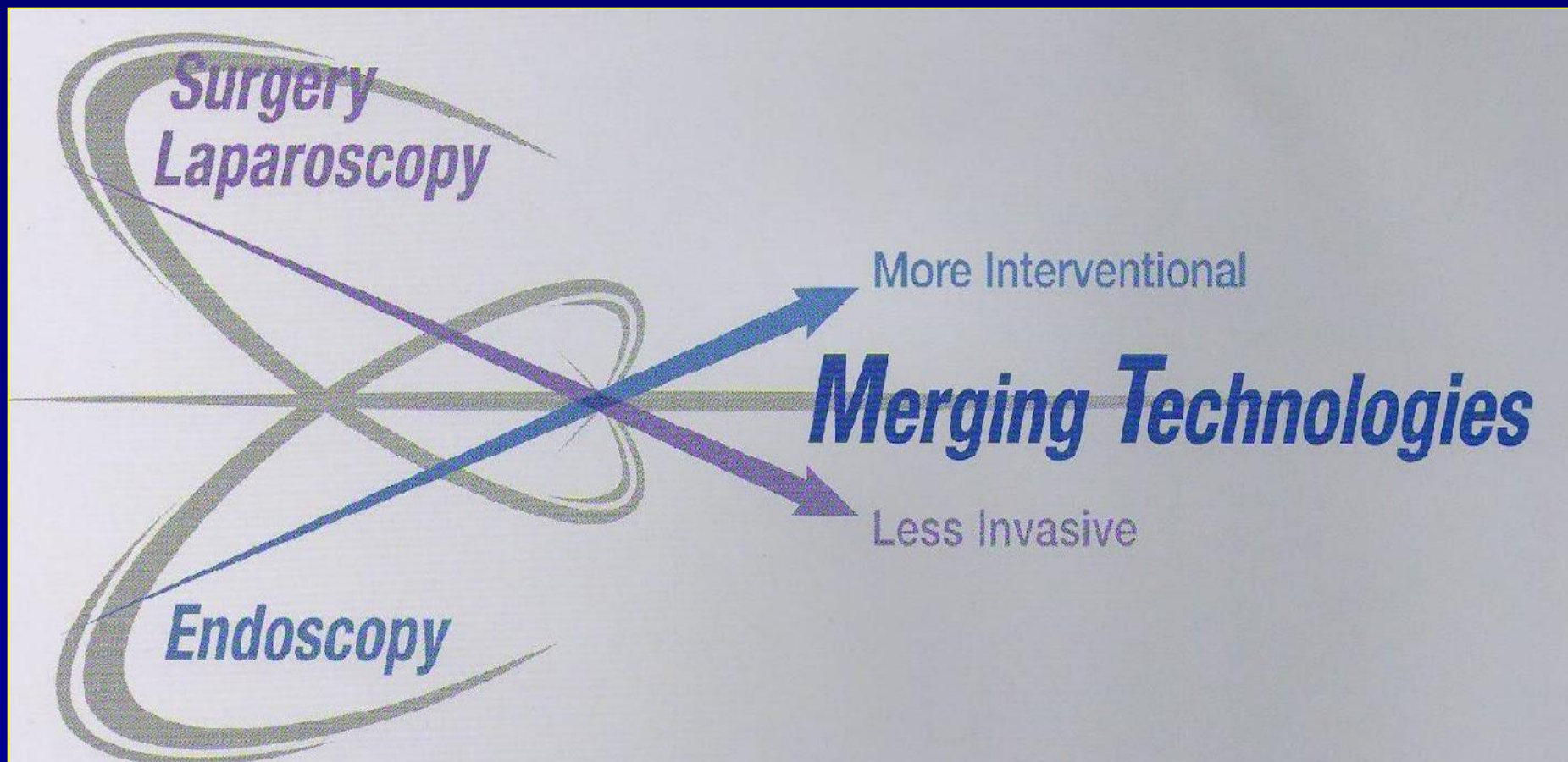
Малотравматичный доступ
лапароскопия



N.O.T.E.S. (без повреждений
передней брюшной стенки)

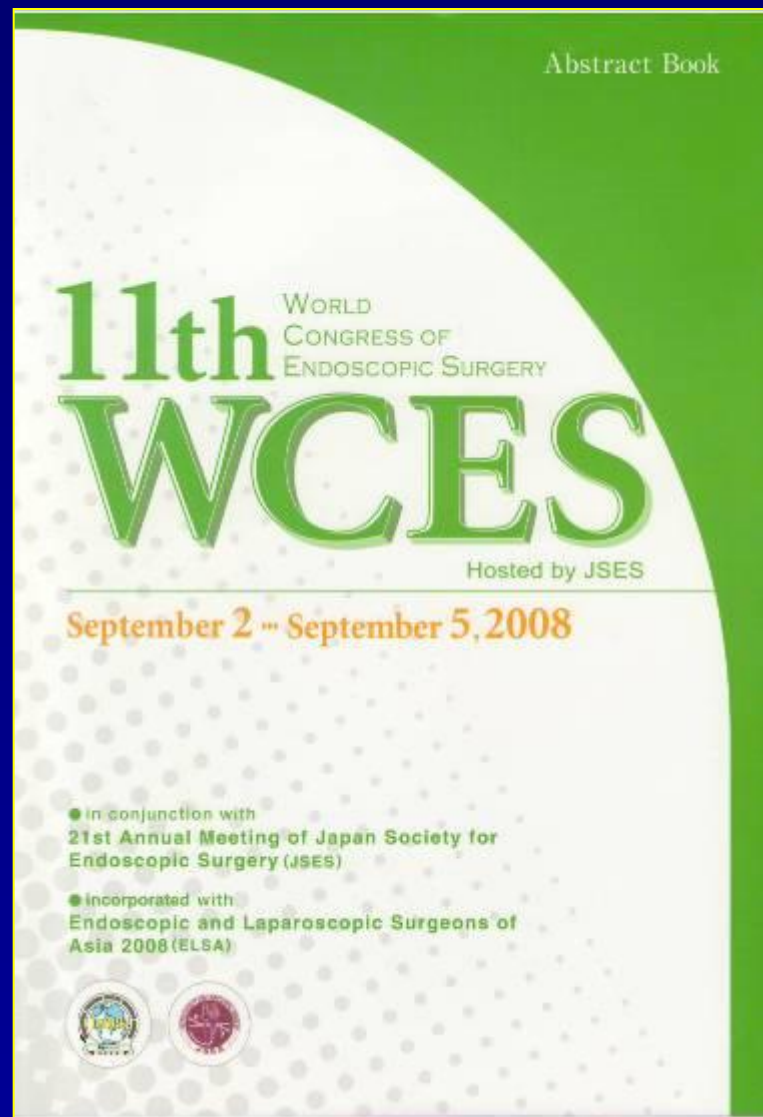
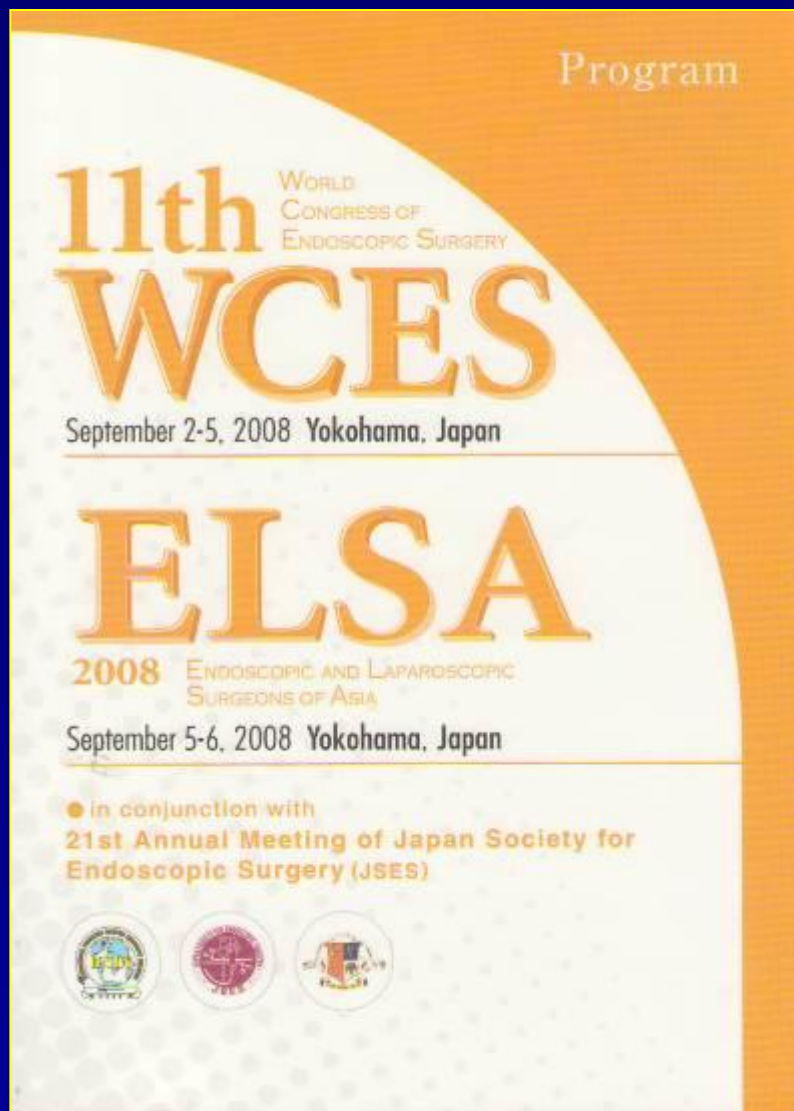


«ДЕВИЗ» 11-го МЕЖДУНАРОДНОГО КОНГРЕССА ПО ЭНДОСКОПИЧЕСКОЙ ХИРУРГИИ...

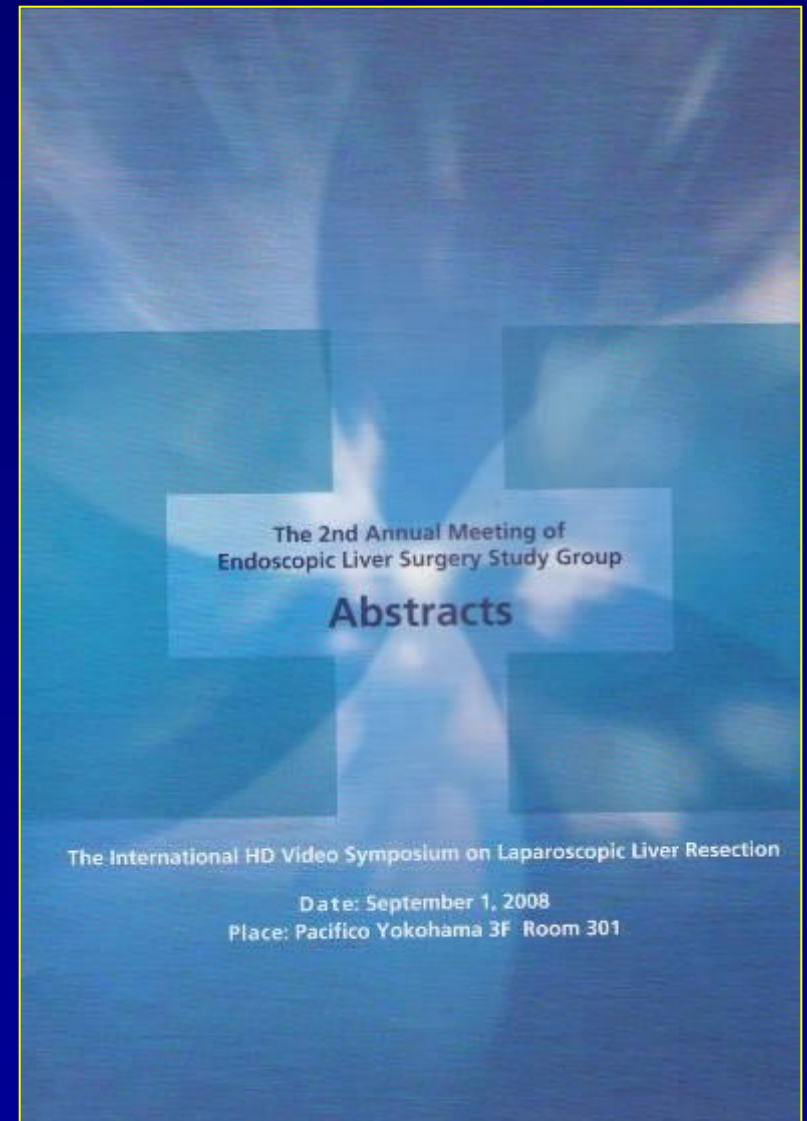
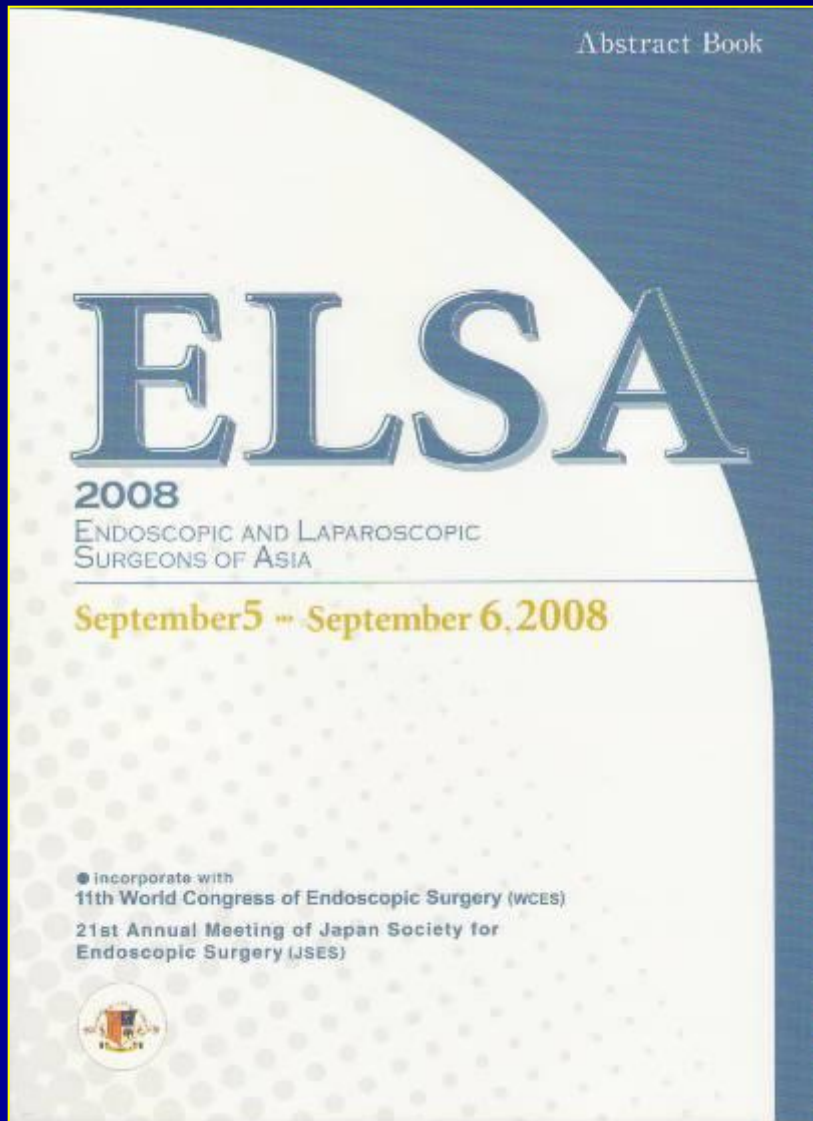


...ВТОРОЕ ДЫХАНИЕ ЭНДОСКОПИИ,
А ТАК ЖЕ ДАЛЬНЕЙШИЙ ШТУРМ
ТРАДИЦИОННОЙ И ЛАПАРОСКОПИЧЕСКОЙ ХИРУРГИИ...

ОСНОВНЫЕ ДОКУМЕНТЫ КОНГРЕССА



ОСНОВНЫЕ ДОКУМЕНТЫ КОНГРЕССА





11th WCES
Symposium



World Summit of NOTES /Endolumenal Surgery

Sponsored by

OLYMPUS

Your Vision, Our Future

Laparoscopy

Merging Technologies

Endoscopy

World Summit of NOTES / Endolumenal Surgery

8:30–8:40 **OPENING REMARKS** **Seigo Kitano, MD** Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

8:40–11:30 **NOTES organizational activity update and proposal for the future**

Chairman: **Robert H. Hawes, MD** Division of Gastroenterology and Hepatology, Medical University of South Carolina, SC, USA
Antonio M. Lacy, MD Department of Surgery, Faculty of Medicine, University of Barcelona/Hospital Clinic, Barcelona, Spain

8:40–11:10 • **NOSCAR** • **EURO-NOTES** • **Japan NOTES** • **Asia-Pacific WG on NOTES** • **NOSLA (Latin America)**

Speaker: • **NOSCAR** **David W. Rattner, MD** Department of Surgery, Massachusetts General Hospital, Boston, MA, USA
 • **EURO-NOTES** **Karl-Hermann Fuchs, MD** Department of Surgery, Markus Krankenhaus, Frankfurt, Germany
 • **Japan NOTES** **Hisao Tajiri, MD** Gastroenterology and Hepatology, The Jikei University School of Medicine, Tokyo, Japan
 • **Asia-Pacific WG on NOTES**
Enders Kowk Wai Ng, MD Department of Surgery, Chinese University of Hong Kong, Prince of Wales Hospital, Hong Kong, China
 • **NOSLA** **Jose R. Speranza, MD** General Surgery, Universidad del Rosario, Rosario, Argentina

11:10–11:30 **DISCUSSION**

Speaker: All speakers

15:00–16:30 **State of the Art: Endolumenal Surgery “Endolumenal Techniques and Future NOTES”**

• **Lower GI Surgery** • **Upper GI Surgery**

Chairman: **Seigo Kitano, MD** Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan
Michael Ka Wah Li, MD Department of Surgery, Pamela Youde Nethersole Eastern Hospital, Hong Kong, China

Speaker: • **Lower GI Surgery**
 1) **Jeffery W. Milsom, MD** Section of Colon and Rectal Surgery, Department of Surgery, Weill Medical College of Cornell University, New York Presbyterian Hospital, NY, USA
 2) **Naohisa Yahagi, MD** Department of Gastroenterology, Toranomon Hospital, Tokyo, Japan
 • **Upper GI Surgery**
 1) **Kazuki Sumiyama, MD** Department of Endoscopy, The Jikei University School of Medicine, Tokyo, Japan
 2) **Kazuhiro Yasuda, MD** Department of Surgery I, Oita University Faculty of Medicine, Oita, Japan

16:30–18:00 **State of the Art: NOTES “Various Approaches and Devices”**

Chairman: **Greg V. Stiegmann, MD** Department of Surgery, University of Colorado Denver, CO, USA
Karl-Hermann Fuchs, MD Department of Surgery, Markus Krankenhaus, Frankfurt, Germany

Speaker: **G. V. Rao, MD** Asian Institute of Gastroenterology, Hyderabad, India
Davide Lomanto, MD Minimally Invasive Surgical Centre, Department of Surgery, National University Hospital, Singapore
Lee L. Swanstrom, MD Minimally Invasive Surgery, Legacy Emanuel and Good Samaritan Hospitals, Legacy Health System, OR, USA
Paul Swain, MD Department of Surgical Oncology and Technology, Imperial College, London, UK
Antonio M. Lacy, MD Department of Surgery, Faculty of Medicine, University of Barcelona/Hospital Clinic, Barcelona, Spain

ТЕРМИНОЛОГИЯ *NOTES*

Natural Orifice Transluminal Endoscopic Surgery
(Эндоскопическая транслюминальная хирургия
через естественные отверстия)

E-NOTES Embryonic Natural Orifice *Transluminal* Endoscopic Surgery

NOTUS Natural Orifice Trans *Umbilical* Surgery

TUES Trans *Umbilical* Endoscopic Surgery

TULA Trans *Umbilical* Laparoscopic Assisted

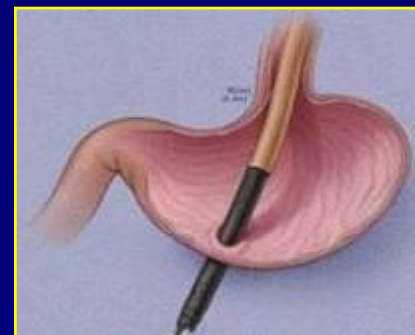
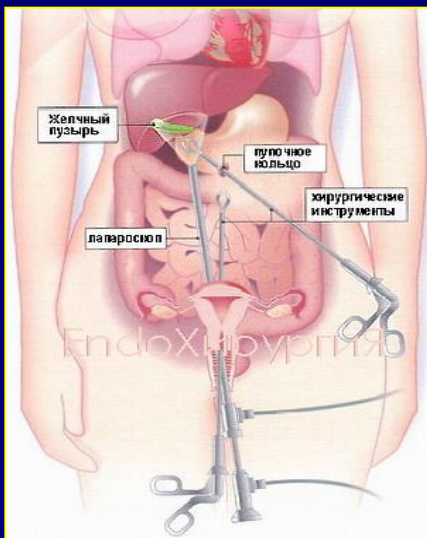
SILS Single Incision Laparoscopic Surgery

SPA Single Port Access

OPUS One Port Umbilical Surgery

LESSS Laparoscopic & Endoscopic Single Site Surgery

NOTES В СХЕМАХ РАЗЛИЧНЫХ АВТОРОВ



ИСТОРИЯ РАЗВИТИЯ ДИАГНОСТИЧЕСКОЙ ЛАПАРОСКОПИИ



Fig. 4-3. Dimitri Oskarovic von Ott at work

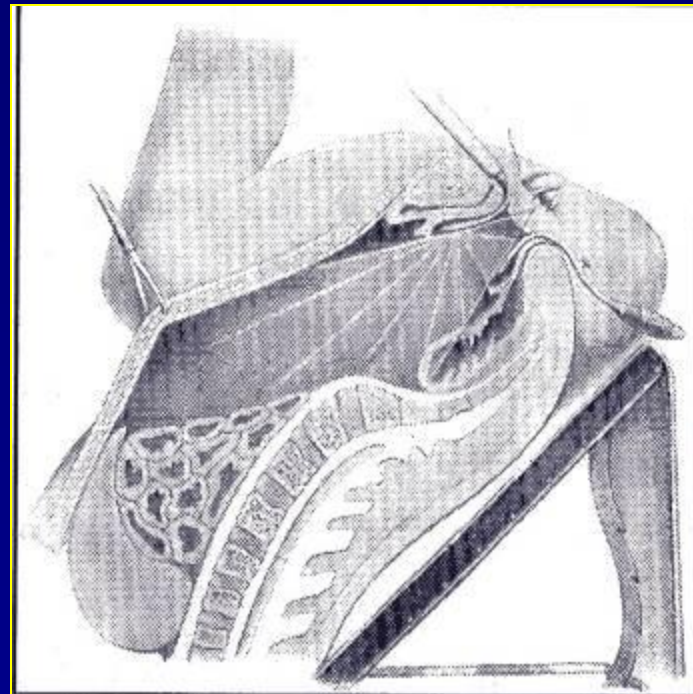


Fig. 4-2. Per vaginam into the abdomen

19 апреля 1901 год – впервые выполнена **вентроскопия** профессором-гинекологом Дмитрием Оскаровичем Оттом и опубликовано сообщение «Освещение брюшной полости (вентроскопия) как метод при влагалищном

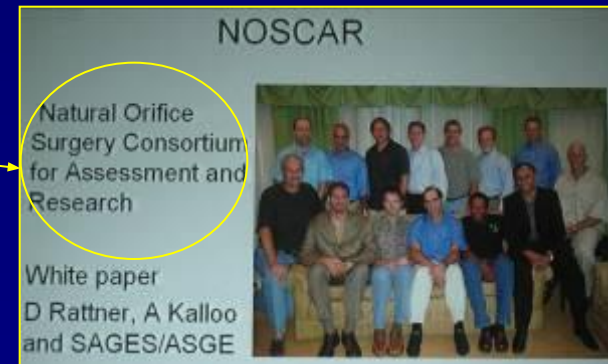
ЭКСПЕРИМЕНТАЛЬНЫЕ ОПЕРАЦИИ

NOTES НА ЖИВОТНЫХ

Swain, Mills	1991	Трансгастральный доступ	Гастроеюностомия Холецистогастростомия
Kallo, Apollo	2004	Трансгастральный доступ	Диагностическая лапароскопия
Swain	2005	Трансгастральный доступ	Холецистэктомия
Jagannath	2005	Трансгастральный доступ	Клипирование маточных труб
Kantsevov	2005	Трансгастральный доступ	Спленэктомия
Unger	2005	Трансгастральный доступ	Аппендэктомия
Lima	2006	Чрезмочепузырный доступ	Лапароскопия
Fong	2007	Чрезтолстокишечный доступ	Лапароскопия

КОМИТЕТЫ ПО КОНТРОЛЮ И ИССЛЕДОВАНИЯМ

**2006 – NOSCAR
(ASGE + SAGES)**



**2006 – Asia-Pacific
NOTES Working Group**



2007 – Euro NOTES

2007 – Japan NOTES

**2008 – Отделение
транслюминальной
хирургии РОЭХ**



NOTES ВМЕШАТЕЛЬСТВА У ЧЕЛОВЕКА

Bessler M.	2007	Комбинированный (трансвагинальный и лапароскопический)	Холецистэктомия
Palanivelu C.	2008	Трансвагинальный	Аппендэктомия
Hazey J.W.	2008	Трансгастральный доступ	Диагностическая лапароскопия
Branco Filho A.J.	2008	Комбинированный (трансвагинальный и лапароскопический)	Холецистэктомия
Zorron R.	2008	Трансвагинальный	Холецистэктомия
Zornig C.	2008	Комбинированный (трансвагинальный и лапароскопический)	Холецистэктомия
Per-Ola Park	2008	Трансгастральный доступ	Аппендэктомия

NOTES-ХОЛЕЦИСТЭКТОМИЯ У ЧЕЛОВЕКА

(ГИБРИДНЫЕ ОПЕРАЦИИ, СОЧЕТАЮЩИЕ ЛАПАРОСКОПИЧЕСКИЙ И
ТРАНСЛЮМИНАЛЬНЫЙ ДОСТУПЫ)

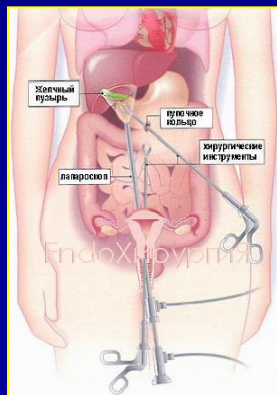
20 марта 2007 года Трансвагинальная лапароскопически-ассистированная
Нью-Йорк, США холецистэктомия с использованием 3-х троакаров



Трансвагинальная лапароскопически-ассистированная
холецистэктомия с использованием
одного 2 мм троакара в правом подреберье

Профессор Jacques Marescaux
2 апреля 2007 года
Университетская клиника,
Страстбург, Франция

Официальная презентация
21 апреля 2007 года
на 7 Конгрессе АНРВА,
Лас Вегас, Невада



Трансвагинальная лапароскопически-ассистированная
холецистэктомия с использованием
одного троакара в параумбиликальной области

24 июля 2007 года
Alice Emmertmann
Больница Израэлитов, Гамбург, Германия

N.O.T.E.S. РАСПРОСТРАНЕННОСТЬ

Впервые в России транслюминальные вмешательства выполнены в «Институте хирургии им. А.В. Вишневского»

(Трансвагинальная холецистэктомия
Мгибким эндоскопом выполнена 16.04.08 г.
Хирурги-эндоскописты: Старков Ю.Г., Шишин К.В.,
Солодина Е.Н. и др.)



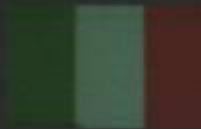
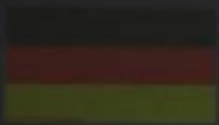
N.O.T.E.S. РАСПРОСТРАНЕННОСТЬ



СТАТИСТИЧЕСКИЕ ДАННЫЕ

HUMAN NOTES-INTERNATIONAL VIEW

- **EUROPE NOTES** >65 cases Marescaux, Zornig, Gellert, Buess, Dolz C, Lacy A, Forgiione A, Corcione



- **USA NOTES** >20 cases Bessler M, Swanstrom L, Horgan S



- **INDIA NOTES** >20 cases

Rao & Reddy, Palanivelu, Balashanmugan

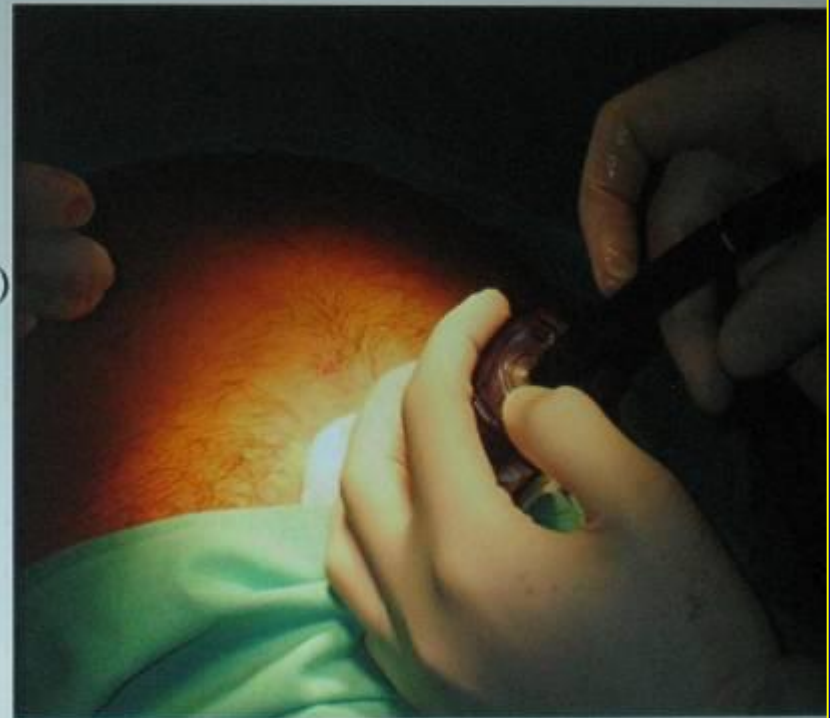


СТАТИСТИЧЕСКИЕ ДАННЫЕ

June 2008

N: over 450 cases

- **Argentina 227 cases**
(Speranza & Horgan group)
 - ENOTES/NOTUS 190 cases
 - NOTES TV. 35 cases
 - NOTES TG. 2 cases
- **Brazil 220 cases (11 many group)**
 - NOTES TV. 173 cases
 - NOTES TG. 27 cases
 - NOTUS 20 cases
- **Chile 5 cases (U. C. group)**
 - NOTES TV. 5 cases
- **Peru 19 cases (Salinas group)**
 - NOTES TG. 19 cases
- **Mexico 10 cases (Davila group)**
 - NOTES TV. 10 cases



СТАТИСТИЧЕСКИЕ ДАННЫЕ

ARGENTINA-HUMAN NOTES-INTERNATIONAL VIEW



Rosario: Speranza J

N.O.T.U.S. 164 cases

• Cholecystectomy Appendectomy-inguinal hernia-colectomy-GERD-
proctorectomy-varicocelelectomy-hysterectomy-nephrectomy



N.O.T.E.S. vaginal 15 cases

- Buenos Aires – Horgan S
- 10 TV NOTES Cholecystectomy
- TV and TG Appendectomy



СТАТИСТИЧЕСКИЕ ДАННЫЕ



- **NOTES TV 2007 – PERU:** **Salinas G**
- 11 cases TG cholecystectomy
- 11 cases TV cholecystectomy
- 1 hepatic biopsy

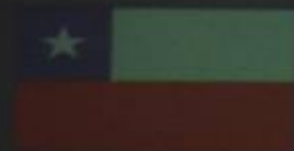
Patients schedule	27	Complications	
Succeed surgeries	23	1 colon serosal laceration	
Complications	6	1 ISO (umbilicus)	minor
Complications related to NOTES	3	1 gallbladder site bleeding	minor
		1 biliperitoneum	reop
		1 ISO (peritonitis)	reop
		1 epiploic vessel bleeding	open
			surgery

СТАТИСТИЧЕСКИЕ ДАННЫЕ

HUMAN NOTES-INTERNATIONAL VIEW



• **NOTES TV November 2007 – EQUADOR:**
Gómez N (Guayaquil)
3 cases TV cholecystectomy



NOTES TV– CHILE:

3 cases TV cholecystectomy

MEXICO: Ávila FD, Tsin D

Poza Rica

5 cases TV cholecystectomy

СТАТИСТИЧЕСКИЕ ДАННЫЕ

**IMTN BRAZILIAN NOTES
MULTICENTER TRIAL**

Zurron R, DeCarli L, Branco Jr A, Speranza J, Salinas G, Forgiome A, Galvan M, Ramos A, Horgan S, Palanivelu C, Souza LB, Mottin CC, Branco AW, Filgueiras M, Ayrosa P, Noda RW, Campos JM, Quintini R, Fonseca AG, Kawahara N, Sakai P, Lima FC, Avila FD, Gómez-Cuesta NA, Balashanmugan IS

16 Medical Centers – 8 Countries

STATUS: Still recruiting Centers to join

RZORRON@TERRA.COM.BR

**IMTN BRAZILIAN NOTES
MULTICENTER TRIAL - 224 PATIENTS**

Zurron R, DeCarli L, Branco Jr A, Speranza J, Salinas G, Forgiome A, Galvan M, Ramos A, Horgan S, Palanivelu C, Souza LB, Mottin CC, Branco AW, Filgueiras M, Ayrosa P, Noda RW, Campos JM, Quintini R, Fonseca AG, Kawahara N, Sakai P, Lima FC, Avila FD, Gómez-Cuesta NA, Balashanmugan IS

University Hospital Teresopolis- HCTOO- FESB Rio de Janeiro, BRAZIL
Santa Casa Porto Alegre, BRAZIL
Hospital Cruz Vermelha Curitiba BRAZIL
Gastrobeso Center- São Paulo, BRAZIL
Souza Group- Goiania, BRAZIL
University Federal Hospital Pernambuco- Recife, BRAZIL
University Federal Rio Grande do Norte- Natal, BRAZIL
PUC Rio Grande do Sul- Porto Alegre, BRAZIL
Hospital Central Lima- PERU
PRG Hospital- INDIA
General Hospital Coimbatore, INDIA
ILCAM-Granda Hospital -Milan, ITALY
Hospital Rosario - ARGENTINA
Hospital Regional SSA, MEXICO
Hospital Quito - EQUADOR

BRAZILIAN NOTES MULTICENTER TRIAL

Conversion to LAPAROSCOPY (N= 224pts)

- * 8 patients transvaginal chole (8/158)
- * 2 patients transgastric chole (2/21)
- * 2 patients transvaginal nephrectomy (1/3)
- * 0 patient transvaginal sleeve gastrectomy (0/3)
- * 0 patient transvaginal appendectomy (0/2)
- * 0 patient cancer staging (0/8)
- * 0 patient gynecologic surgery (0/12)

IMTN BRAZILIAN NOTES, Multicenter Trial, Zurron R, DeCarli L, Galvan M, Ramos A, et al 2008

IMTN BRAZILIAN NOTES MULTICENTER TRIAL

NOTES Procedures	TV NOTES Procedures	Patients
IMTN	1. TV Cholecystectomy	158
224 clinical NOTES (Brazil-129)	1. TG Cholecystectomy	21
	2. TV Nephrectomy	3
	3. TV Appendectomy	4
	4. TV Hepatic Biopsy	3
	5. TV Sleeve Gastrectomy	3
	6. Gynecologic Procedures	12
	7. Tidal ligation	4
	8. TV Hysterectomy	3
	9. TV Biopsy Peritoneoscopy	4
	10. TV Ouphrectomy	1
	11. TV Cancer Staging	8
	12. Other	10

IMTN BRAZILIAN NOTES, Multicenter Trial, Zurron R, DeCarli L, Galvan M, Ramos A, et al 2008

ВСЕМИРНЫЙ ОПЫТ ПО NOTES

Латинская Америка – более 450 наблюдений

Аргентина – 227 наблюдений

190 - трансумбиликальные операции

35 - NOTES трансвагинальные

2 - NOTES трансгастральные

Бразилия 220 наблюдений

20 - трансумбиликальные операции

173 - NOTES трансвагинальные

27 - NOTES трансгастральные

Чили 5 наблюдений (NOTES трансвагинальные)

Перу 19 наблюдений (NOTES трансвагинальные)

Мексика 10 наблюдений (NOTES трансвагинальные)

Германия – 65 наблюдений (NOTES трансвагинальные)

Япония – 5 наблюдений

США – 5 наблюдений (4 - NOTES трансвагинальные и 1 трансгастральная)

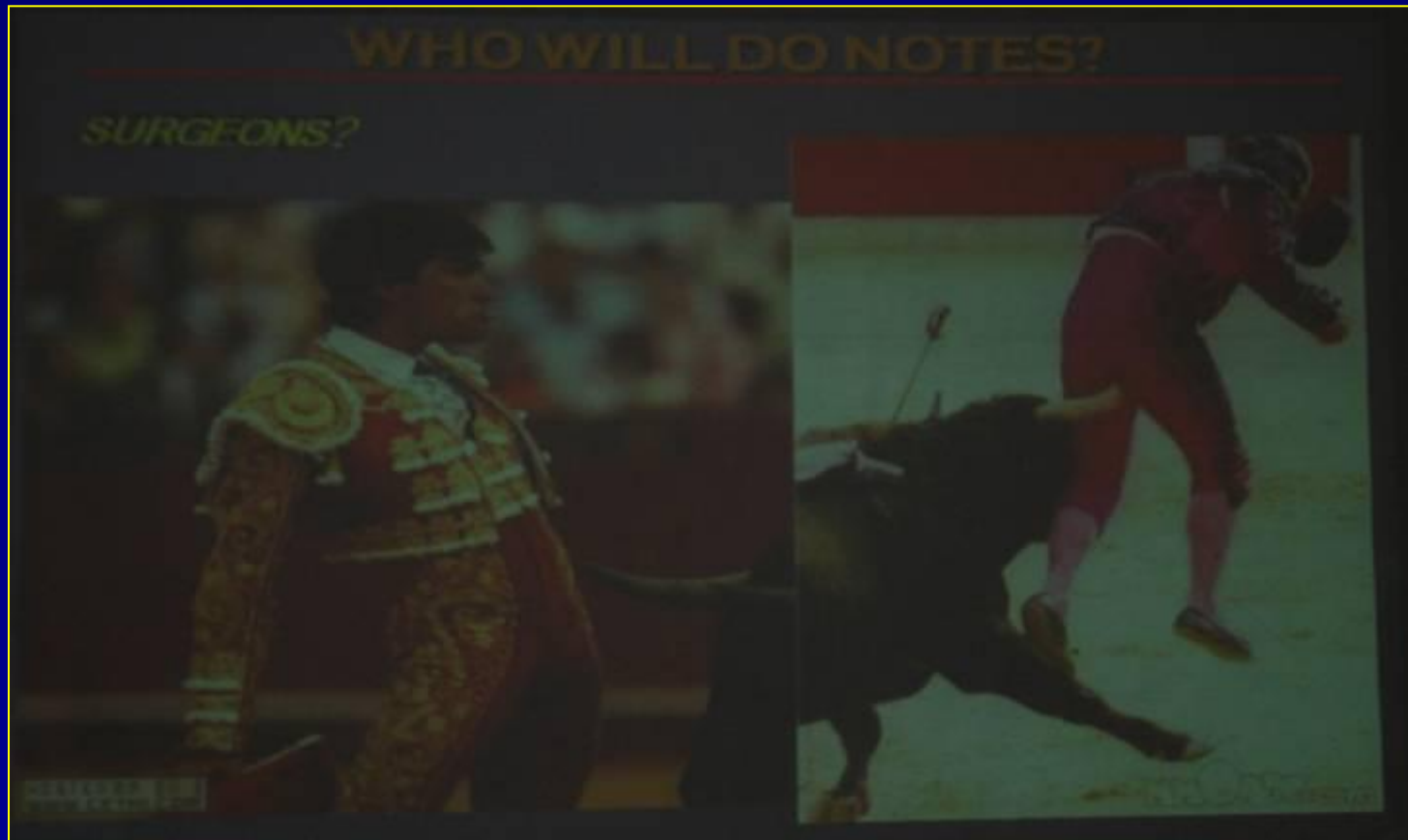
Франция – 1 наблюдение (NOTES трансвагинальная)

Индия – 14 трансгастральных аппендэктомий

Швеция – 1 трансгастральная аппендэктомия

Испания – NOTES колэктомия

КТО БУДЕТ ВЫПОЛНЯТЬ NOTES !?!?...



ХИРУРГИ

ГАСТРОЭНТЕРОЛОГИ

ГИНЕКОЛОГИ

ИНТЕРНИСТЫ

ЭНДОСКОПИСТЫ !?!...

NOTES
ТЕХНОЛОГИИ НА
СОВРЕМЕННОМ
ЭТАПЕ

ВЫСТУПЛЕНИЕ ПРЕЗИДЕНТА КОНГРЕССА SEIGO KITANO

Volume 1, Number 1, 2008

1

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Asian Journal of Endoscopic Surgery

Official Journal of the Japan Society for Endoscopic Surgery and the Asia Endosurgery Task Force



Review Articles

[NOTES] Seigo Kitano, M.D.
[GASTRIC] Han-Kwang Yang, M.D.
[COLORECTAL] Michael Li, M.D.
[BARIATRIC] Pradeep Chowbey, M.D.

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AETF

Official Journal of the Japan Society for Endoscopic Surgery and the Asia Endosurgery Task Force

REVIEW ARTICLES

Current status and activity regarding natural orifice transluminal endoscopic surgery (NOTES) in Japan



Seigo Kitano, M.D.¹, Hideo Tajiri, M.D.², Kazuhiko Yasuda, M.D.³, Fichi Ikeda, M.D.⁴, Kazuki Sumiyama, M.D.⁵, Kyoko Nakajima, M.D.⁶, Yoshihisa Sakai, M.D.⁷ and Japan NOTES working group for white paper contribution

¹ Department of Gastroenterological Surgery, Oita University Faculty of Medicine, Oita, Japan; ² Department of Gastroenterology and Hepatology, ³ Department of Endoscopy, The Jike University School of Medicine, Tokyo, Japan; ⁴ Department of Surgery, Osaka University Graduate School of Medicine, Suita, Japan; ⁵ Third Department of Surgery, Toho University School of Medicine, Chiba, Japan; ⁶ Osaka, Japan; ⁷ Osaka, Japan

Key words: NOTES, Natural orifice transluminal endoscopic surgery, Japan NOTES

Abstract:
Natural orifice transluminal endoscopic surgery (NOTES) is a new, minimally invasive technique in the field of gastroenterological surgery. Research on NOTES has rapidly progressed all over the world. A joint committee on NOTES organized by the Japan Society for Endoscopic Surgery (JSES) and the Japan Gastroenterological Endoscopy Society (JGES) established Japan NOTES to encourage the responsible development and safe adoption of NOTES into clinical practice. This paper provides an overview of the current activity in regard to NOTES in Japan.

Introduction:
Natural orifice transluminal endoscopic surgery (NOTES) is a new and rapidly evolving minimally invasive technique that provides access to the abdominal or thoracic cavity via transoral, transvaginal or transanal routes¹. Theoretical advantages of NOTES over those of laparoscopic surgery include improved cosmesis by elimination of any incision on body surface, less pain, less physiologic reaction and reduction of wound-related complications. In 2004, Kalloo et al first described the feasibility of performing peroral transgastric endoscopic peritoneoscopy in a porcine model². Over a short time, a number of experimental studies have shown the technical feasibility of the NOTES technique in a variety of abdominal surgeries, including tubal ligation³, oophorectomy⁴, cholecystectomy⁵, gastroduodenostomy⁶ and splenectomy⁷. Moreover, several clinical applications of NOTES have been reported since 2007⁸⁻¹¹. Laparoscopic gastrectomy with lymph node dissection for gastric cancer was first developed in Japan¹². Thereafter, a new technique of endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), was developed, making it possible to perform en bloc dissection of large early-stage gastrointestinal cancer¹³. Furthermore, endoscopic full-thickness resection (EFTR) has been developed actively in Japan as the new concept beyond EMR/ESD technique since 2000¹⁴. The advanced laparoscopy and flexible endoscopy skills used in these techniques will contribute to the development of NOTES¹⁵. This paper provides an overview of the current status and activity in regard to NOTES in Japan.

NOTES И ИНФЕКЦИЯ

NOTES™

Not Can we but Should we?

- The technical feasibility of NOTES is proven
- Should there be **any** sacrifices that a patient endures in order to undergo a NOTES procedure?
- How should we measure these risks against the proposed benefits?

Cost, exposure/retraction, length of procedure and infection have been raised as concerns

Summary

- Infection/ GI leak rate will have to be less than 1% added to commodity procedures (gallbladder) where outcomes are uniformly excellent UNLESS outcomes are more revolutionary than predicted.

NOTES colon procedures maybe ideal indication

What will the barriers be?

- Cost, exposure/retraction, length of procedure can likely be brought into a range similar to laparoscopy given sufficient time, ingenuity and market size.

Trans-vaginal approach

- Vaginal flora varies with age, menopause status, and sexual activity.
- Bacterial vaginosis is common and can occur even among sexually inactive.
- Direct contamination of the peritoneum with bacteria secondary to STD is not well studied.

Clinical risk from infection is likely to be low but not absent

Trans-gastric Route

- Trans gastric instrumentation and bacterial contamination of the peritoneal cavity. (Meehl et al 2008)
- 30 pts studied LAP-GO prospectively. PPI affected flora and bacterial load. NO significant infection.



- Can gastric irrigation prevent infection during NOTES mesh placement? (Buck et al 2008)
- NO!

Trans-vaginal approach

- How do gynecologists feel about transvaginal NOTES surgery? (Hewitt et al 2009)
- Concerns about dyspareunia, endometriosis, infection.
- A randomized trial of povidone iodine and chlorhexidine as antiseptics for vaginal hysterectomy (Culham et al 2006)
- Chlorhexidine is superior but contamination in both groups is persistent.



- Pelvic abscess and pelvic cellulitis runs 1 to 3%

Trans-colonic approach

- Even in the face of bowel preparation, bacterial counts are significant.
- Intra-abdominal abscess rate from incidental appendectomy appendiceal stump blow out rate is 1%



- Clinically significant anastomotic leak rate is 2% however radiographic leak rate is 33%

Trans-colonic approach

- One should assume that there will be some incidence of infection associated with this route.



- Using appendectomy as a model the infection and closure risk will be in the 1 to 3% range.

Most common routes



Decreases on PPI
More bacteria than believed

Gram - rods
Coliforms
Gram + cocci
Anaerobes



Lactobacilli
Yeast
STD
Bacterial vaginosis is com

Concluding thoughts

- Trans gastric routes are likely to be associated with fewer infections.
- Even if the added infection rate is 1% then worldwide implication could be significant even for cholecystectomy where 10,000 additional infections will be seen for every one million cholecystectomies performed.

Concluding thoughts

Now we have.....



Revolutionary
pt outcomes/technology

Revolutionary
technology

NOTES И ИНФЕКЦИЯ



Methods

- 3 fluid samples collected from each patient

Sample	Collection Site	Lavage	Gastrotoomy
A	Scope Rinse	No	Pre-gastrotoomy
B	Peritoneum RUQ	Yes	Pre-gastrotoomy
C	Peritoneum RUQ	Yes	Post-gastrotoomy

Conclusion

- Scopes had bacterial contamination after being disinfected
- Bacterial contamination in the peritoneum is seen in 5/10 pts in sample C
- Transgastric peritoneoscopy caused no significant contamination in the peritoneal cavity
- There was minimal bacterial growth in the contaminated peritoneal fluid resulting in no clinically significant infections
- Gastric sterilization does not seem necessary in transgastric NOTES procedures

Conclusion

- Transgastric access to the peritoneal cavity is a safe platform on which the first generation NOTES procedures can be performed without any increased risk of infection or compromising the standard of care in humans



The Ohio State University
Center for Minimally Invasive Surgery

**НЕ ВЕРЬТЕ, ЧТО ТОМ КРУЗ БЫЛ ПОСЛЕДНИЙ САМУРАЙ
Endo SAMURAI ОТКРОЕТ НОВЫЙ ПУТЬ В 21-Й ЭНДСКОПИЧЕСКИЙ ВЕК...**

TOM CRUISE

忠
DUTY
LOYALTY

FOR THE SAMURAI, HONORING SOMEONE ABOVE THEM IS THE SAME THING AS KNOWING WHO YOU ARE. IT IS RESPECTING THE THING HE IS RESPECTING FOR IT AND ALL THE COMMITMENTS THAT FOLLOW. A SAMURAI IS INHERENTLY LOYAL TO THOSE IN WHOSE CAUSE HE FIGHTS. HE IS RESPONSIBLE FOR THE BLOOD HE SHEDS.

勇
HEROIC
COURAGE

THE WAY OF SAMURAI IS NOT TO BE AFRAID OF ANYTHING. IT IS TO BE BRAVE IN A WAY THAT IS NOT LIVING AT ALL. A SAMURAI WHO HAS HEROIC COURAGE IS AN ADVENTURER. HE IS BRINGING LIFE TO THE WORLD. HE IS BRINGING LIFE TO THE WORLD. HE IS BRINGING LIFE TO THE WORLD.

義
HONOR
JUSTICE

BY ACCEPTING HONOR, YOU ACCEPT RESPONSIBILITY. YOU ACCEPT THE RESPONSIBILITY OF THE PEOPLE WHO TRUST YOU. YOU ACCEPT THE RESPONSIBILITY OF THE PEOPLE WHO TRUST YOU.

礼
POLITE
COURTESY

SAMURAI WANTS THE REASON FOR HIS COURAGE IS NOT HIMSELF. IT IS THE PEOPLE WHO TRUST HIM. A SAMURAI IS A PERSON WHO IS RESPONSIBLE FOR THE PEOPLE WHO TRUST HIM. A SAMURAI IS A PERSON WHO IS RESPONSIBLE FOR THE PEOPLE WHO TRUST HIM.

仁
COMPASSION

THROUGH HIS COURAGE, SAMURAI BECOMES COURAGE AND IT IS NOT AS OTHERS. HE DEVELOPS A POWER WHICH HE USES FOR THE GOOD OF ALL. HE HAS COURAGE. HE HAS COURAGE. HE HAS COURAGE.

誠
SINCERITY

WHEN A SAMURAI HAS COURAGE, HE WILL DO ANYTHING. HE WILL DO ANYTHING. HE WILL DO ANYTHING.

HONOR

A SAMURAI DOES NOT BELIEVE IN HIS OWN POWER. HE BELIEVES IN THE POWER OF HIS PEOPLE. HE BELIEVES IN THE POWER OF HIS PEOPLE.

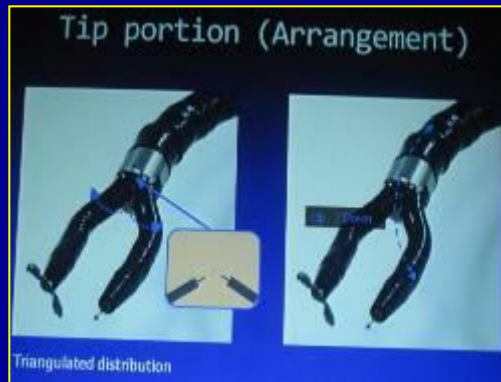
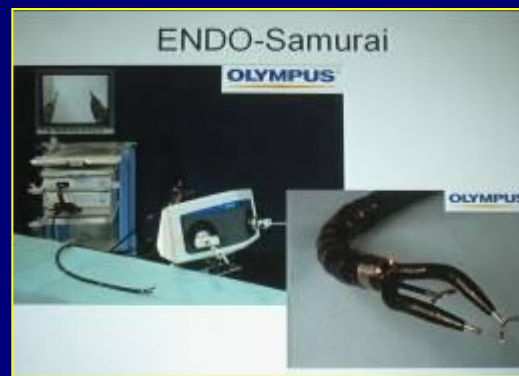
THE LAST SAMURAI

武士道

Endo SAMURAI will soon be on its way in the 21st century.

DECEMBERS

EndoSAMURAI



ТРАНСРЕКТАЛЬНАЯ ХОЛЕЦИСТЭКТОМИЯ С ИСПОЛЬЗОВАНИЕМ EndoSAMURAI (в эксперименте)

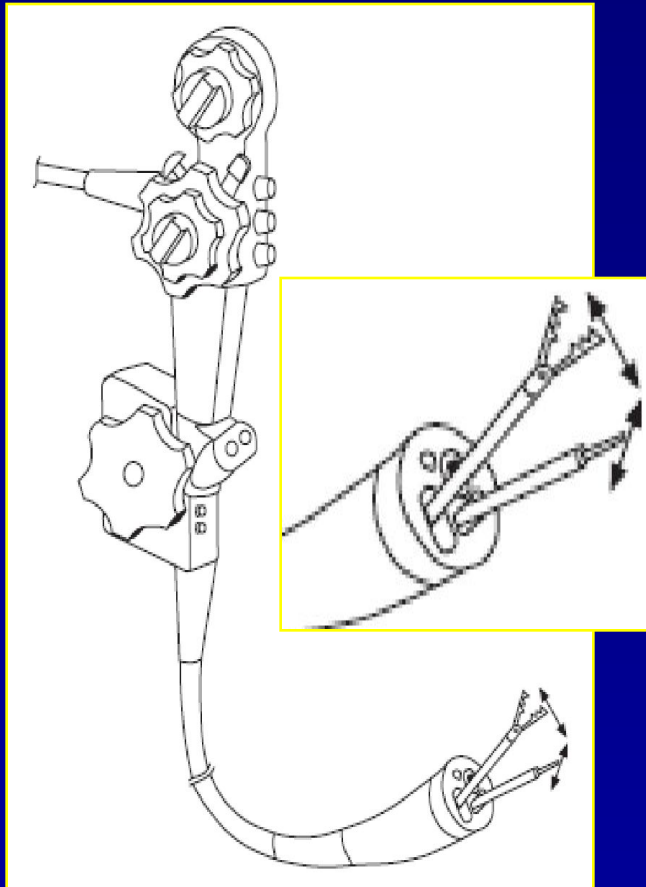


РАБОТА EndoSAMURAI НА СТЕНКЕ ПОЛОГО ОРГАНА (в эксперименте)

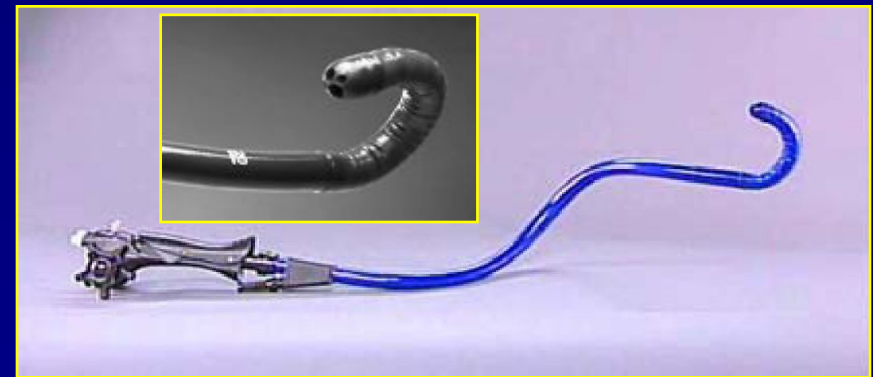


ГИБКОВОЛОКОННЫЕ ЭНДСКОПЫ ДЛЯ NOTES ВМЕШАТЕЛЬСТВ

R-score



3-х канальный эндоскоп

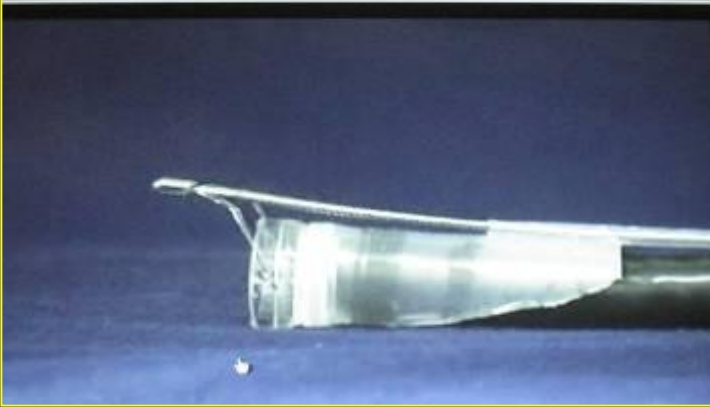


Эндоскоп COBRA

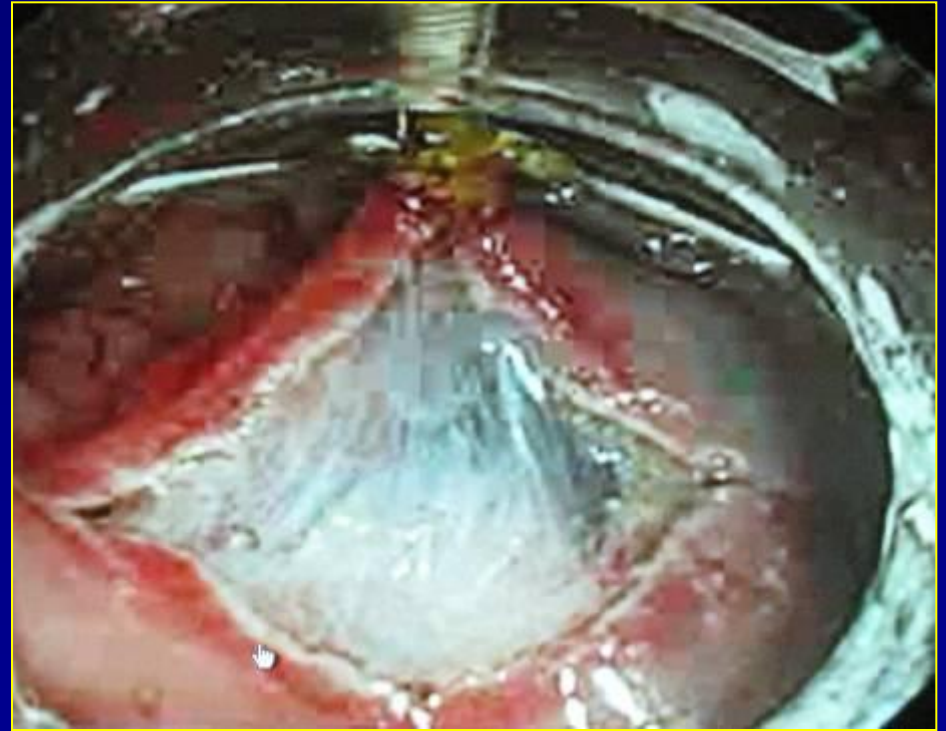


NOTES - НОВЫЕ ИНСТРУМЕНТЫ

Lifting Device



Lifting Device

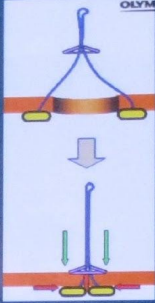
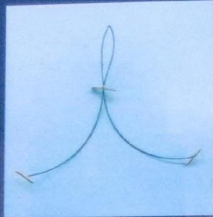
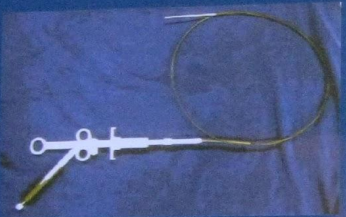


NOTES - ИНСТРУМЕНТЫ



Olympus Development on NOTES

- Suturing devices
 - T-Bar Device



- » 510k not cleared
- » Dual T-Bars pre-loaded
- » Compatible with Olympus Flexible Endoscopes



NOTES - ИНСТРУМЕНТЫ

Transgastric Access



without



with

pneumoperitoneum

Olympus Development on NOTES



Hand suturing device
Two Channels GIF-T

Olympus M scope



Olympus XGIF 2T240M
("M-scope")

Double 3.2mm channels

2nd Bending



STABLE PLATFORM for TRANSGASTRIC CHOLECYSTECTOMY .



GIFT-2 T

M-scope
R-scope

ГИБКОВОЛОКОННЫЕ РОБОТОНИЗИРОВАННЫЕ ЭНДСКОПИЧЕСКИЕ ТЕХНОЛОГИИ

**Flexible Robotic Endoscopic Technology
for Surgical and Diagnostic Applications**

Amir Belson, MD
Founder & CTO
NeoGuide Systems Inc.

NeoGuide
Control panel




NeoGuide Flexible Robotic Endoscopic Technology
How it works

- Fully Controllable Shape**
Scope has multiple motorized bending segments
- Real-Time Shape/Position Sensing**
3-D shape map for orientation and navigation
- Integrated Video**
Live image from distal tip
- Physician Control**
Steer scope using 3D map and camera image
- Console**
Computer controls segment motors to safely navigate scope to physician-steered position

NeoGuide
Control panel



Background

- ✓ Beyond doubt, laparoscopic cholecystectomy is the gold standard surgery for cholecystectomy today.
- ✓ The primary aim of NOTES was elimination of the entire scar.

		
Open Cholecystectomy 1867	Laparoscopic Cholecystectomy 1987	NOTES Cholecystectomy 2007

Shape Control Enables

- Navigation through tortuous path and access to target organs
- Bird's Eye View for orientation in body cavity
- Ability to apply and withstand forces from tools

	
Shape control in 2D space	Shape control in 3D space

NeoGuide
Control panel

КОЛОССАЛЬНЫЙ ОПЫТ, ПОЧТЕННЫЙ ВОЗРАСТ В ЛИЦЕ АРМЕНГОЛ МИРО... - ПРИЗНАЮТ И ДАЮТ ЖИЗНЬ НОВЫМ ТЕХНОЛОГИЯМ В ВИДЕ *NOTES* ...

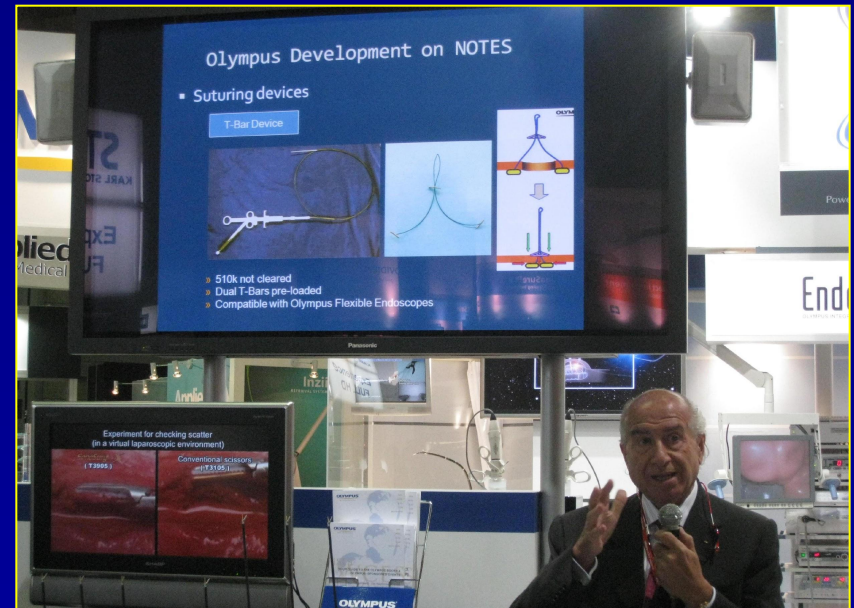


ЛЬН
И Д
НН
ИРО
ЫМ
...
ДЕ А
ВИД

КОЛОССАЛЬНЫЙ ОПЫТ, ПОЧТЕННЫЙ ВОЗРАСТ В ЛИЦЕ АРМЕНГОЛ МИРО... - ПРИЗНАЮТ И ДАЮТ ЖИЗНЬ НОВЫМ ТЕХНОЛОГИЯМ В ВИДЕ NOTES ...



ЕНН
НОВЫ



SILS

Single Incision Laparoscopic Surgery

OPUS

One Port Umbilical Surgery

SPA

Single Port Access

LESSS

Laparoscopic & Endoscopic Single Site Surgery

Components



Triport



Deployment of the Port



СРАВНИТЕЛЬНАЯ ОЦЕНКА ГИБКОВОЛОКОННОЙ ПЕРИТОНЕОСКОПИИ И РИГИДНОЙ ЛАПАРОСКОПИИ

ASSESSMENT AND COMPARISON OF DIGITAL IMAGE QUALITY FOR PERITONEOSCOPY USING THE FLEXIBLE ENDOSCOPE AND THE RIGID LAPAROSCOPE FOR NOTES PROCEDURES

The 11th World Congress of Endoscopic Surgery

JOHNS HOPKINS

Ozanan R Meireles MD 1, Lia R Assumpcao MD 1, Timothy M Pawlik MD 1, Michael A Choti MD 1, Noam Belkind MD 2, Keith N Apolgren MD 2, Michael R Marohn DO 1

1 – Dept of Surgery, Johns Hopkins University School of Medicine, Baltimore, MD
2 – Dept of Surgery, Michigan State University College of Human Medicine, MI

Results

Mean DIQACSP

Flexible Endoscope	Rigid Laparoscope
DIQACSP 31.35 ± 3.19	DIQACSP 28.64 ± 4.11

(P = 0.193)

Conclusion

- Poor maneuverability and lack of rigidity remain important technical challenges for stable intraperitoneal navigation
- Lens angulation are designed for closer view and have limitation for more panoramic view
- Flexible endoscopes may be the ideal tools for NOTES procedures
- Provide excellent image quality during peritoneoscopy
- Their reach goes beyond the rigid scopes
- Offer other unique advantages

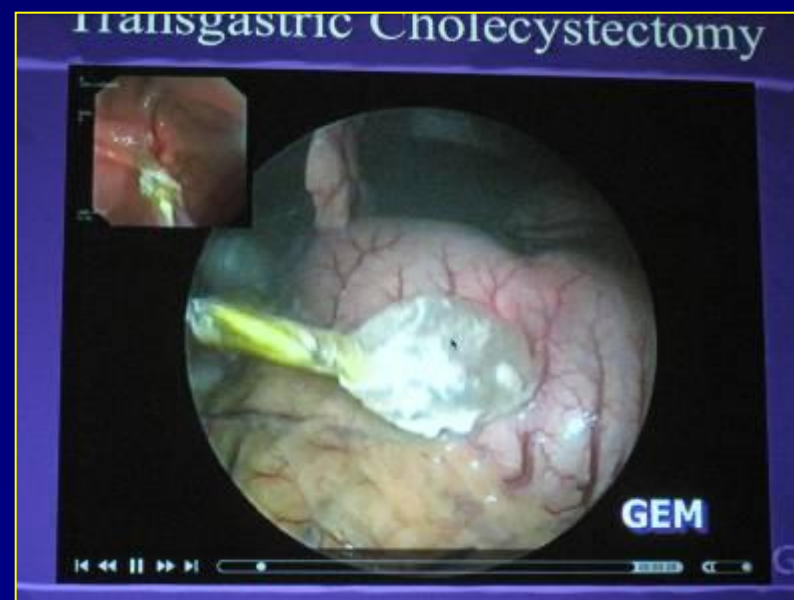
Conclusion

- Further improvements in flexible scope design are warranted:
 - Adjustable less angulation
 - Conformable flexibility and rigidity
- Flexible scopes have the potential to evolve into the preferred image source for both NOTES and trans-abdominal peritoneoscopy.

ТРАНСГАСТРАЛЬНАЯ ХОЛЕЦИСТЭКТОМИЯ



TGChol. ТРАНСГАСТРАЛЬНАЯ ХОЛЕЦИСТЭКТОМИЯ



ТРАНСГАСТРАЛЬНАЯ ЭНДОСКОПИЧЕСКАЯ ГАСТРОЕЮНОСТОМИЯ (в эксперименте)

Transgastric Endoscopic Gastrojejunostomy

Philip WY CHIU
Institute of Digestive Disease
Department of Surgery
Chinese University of Hong Kong

Covidien Grant, NOSCAR
Chiu et al

- Combi-knife vs balloon dilatation method in endoscopic gastrostomy and establishing peritoneal access

TABLE 11
Name :
Sex : Age :
D.O.Birth :
28 08 2007
14:50:19
632 069
SCV:23

Dr: N S B S
4: 2
KK

Physician :
Comment :



Acknowledgement: Olympus Japan
Chiu et al (Hong Kong Group)
Presented in NOSCAR 2008

- Test of concept on NOTES gastrojejunostomy

01/04/2008
13:38:29
SCV-20



Acknowledgement: Covidien Grant, NOSCAR
Chiu et al (Hong Kong Group)

- Test of concept on NOTES gastrojejunostomy

01/04/2008
13:41:24
SCV-20



Acknowledgement: Covidien Grant, NOSCAR
Chiu et al (Hong Kong Group)

- Project 6
- Test of concept on NOTES gastrojejunostomy

01/04/2008
13:44:26
SCV-20



Acknowledgement: Covidien Grant, NOSCAR
Chiu et al (Hong Kong Group)

TVChoI. ТРАНСВАГИНАЛЬНАЯ ХОЛЕЦИСТЭКТОМИЯ С ТРАНСУМБИКАЛЬНОЙ АССИСТЕНЦИЕЙ

Surgical procedure

Combined transvaginal and transumbilical access

1. Lloyd-Davis position
2. Infraumbilical incision
 - Verress-needle
 - atraumatic 5 mm Trokar
 - 5 mm video-camera
3. Head tilted down to inspect the small pelvis



4. Transvaginal access through posterior vault



blunt introduction of a long, atraumatic 10/12 mm trocar for 45° video camera

long forceps, introduced through posterior vault

Conclusions

- Transvaginal assisted cholecystectomy is feasible as a routine procedure
- Patients are happy with this new procedure
- Pain no difference to lap. CCE
- So far no infections
- Three surgeons in training

5. preparation of triangle of Calot

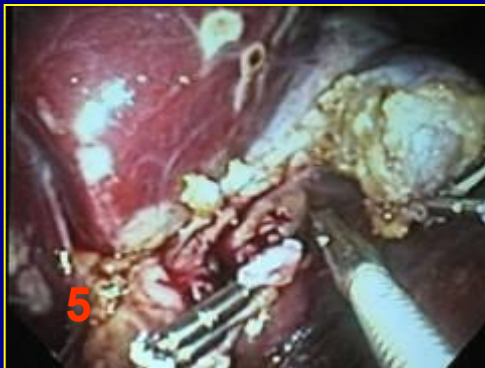
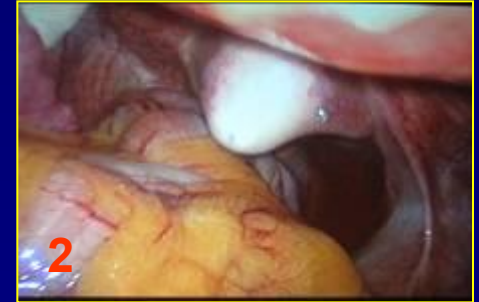


removing the gallbladder in a bag



7. Suture to the posterior vault

TVChol Трансвагинальная холецистэктомия у человека с использованием IT-Knife инструмента



NOTES. ТРАНСГАСТРАЛЬНОЕ ИЗВЛЕЧЕНИЕ УДАЛЕННЫХ ОРГАНОВ

**Removal of appendix
through trans-gastric route**



A clinical case

**Removal of appendix
through trans-gastric route**



A clinical case

Trans-gastric cholecystectomy



A clinical case

Trans-gastric cholecystectomy



A clinical case

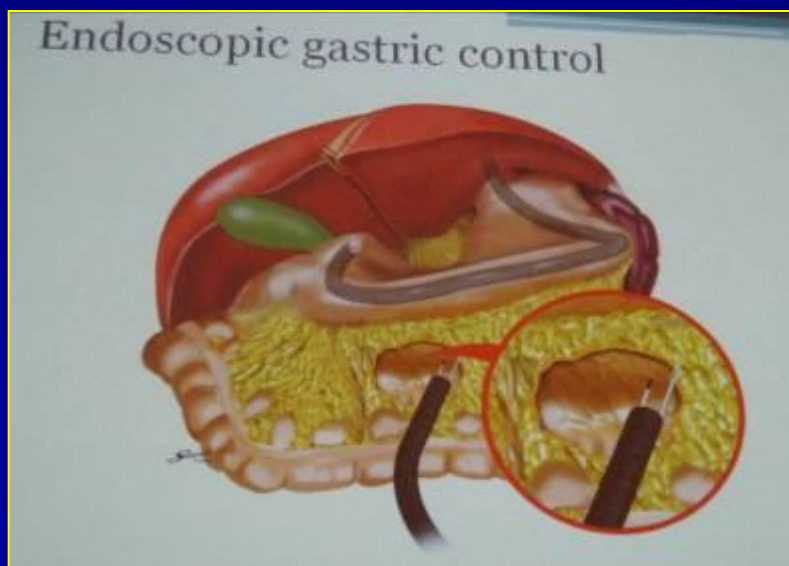
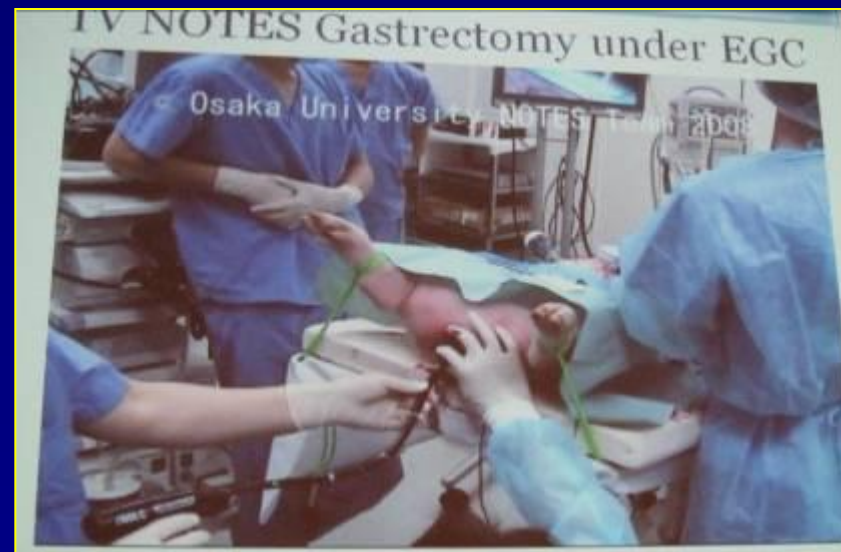

ТРАНСВАГИНАЛЬНАЯ NOTES ГАСТРЭКТОМИЯ В ЭКСПЕРИМЕНТЕ

WCES 2008, Yokohama, Japan

Transvaginal NOTES gastrectomy under "endoscopic gastric control":
The use of another endoscope as a retracting device of the stomach

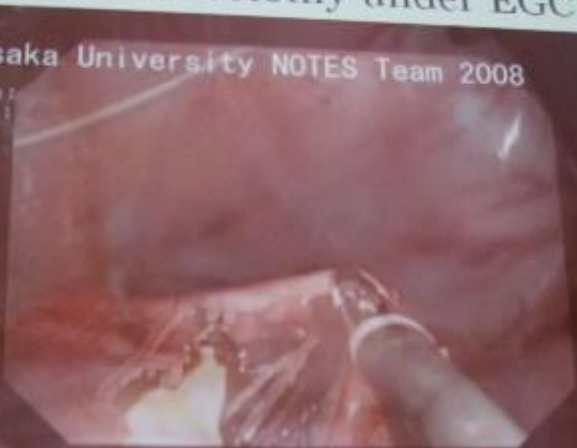
Kiyokazu Nakajima, Tsuyoshi Takahashi
Yoshihito Souma, Toshirou Nishida

Department of Surgery
Osaka University, Osaka, Japan



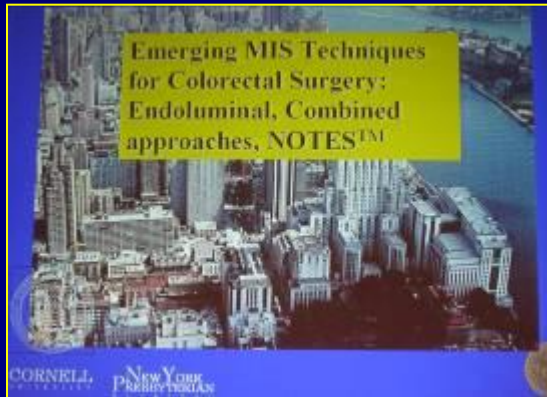
TV NOTES Gastrectomy under EGC

ID No. :
Name : Osaka University NOTES Team 2008
Sex : Age :
D.O. Birth :
2008-06-24
14:26:49
SCV: 10
G: N bit A1
G: O Z: 1.0
Physician :
Comment :



COLON - NOTES

Emerging MIS Techniques for Colorectal Surgery: Endoluminal, Combined approaches, NOTES™



CORNELL UNIVERSITY | NEW YORK PRESBYTERIAN HOSPITAL



N.O.T.E.S.™

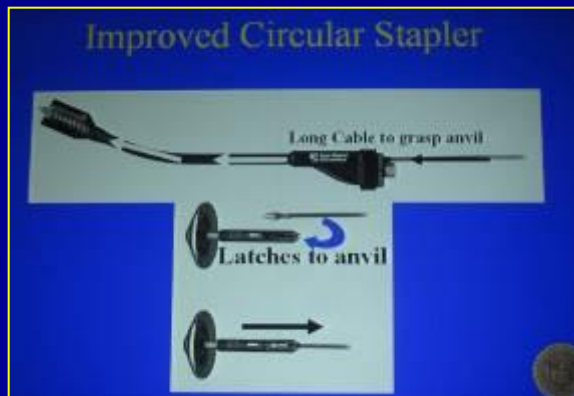
- Natural Orifice Trans Endoscopic Surgery
- A patented term, devised by group of USA based gastroenterologists and surgeons
- “Field” started: endoscopic appendectomy via stomach performed by Indian GI doctor

New Stapling Devices



- Hand Held
- Flexible shaft
- Various Stapler clips

Improved Circular Stapler



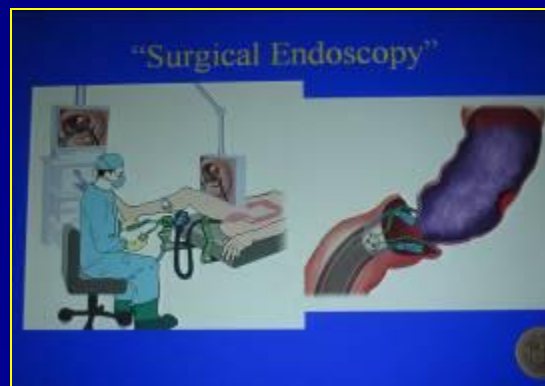
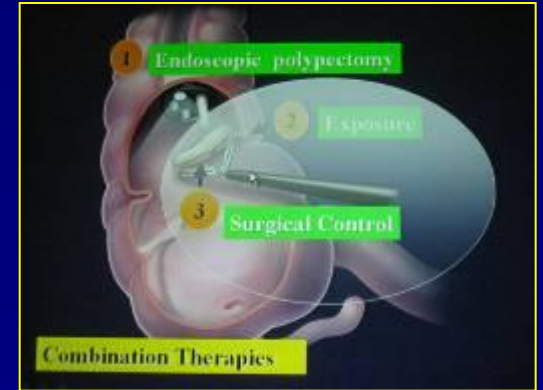
Long Cable to grasp anvil

Latches to anvil

Practical Applications: New Endoluminal Therapies in Colorectal Diseases

- Closure of perforations
- Repair of anastomotic leaks
- Aggressive excisional therapies
 - Benign lesions
 - Some cancers?
 - Strictures
 - Others

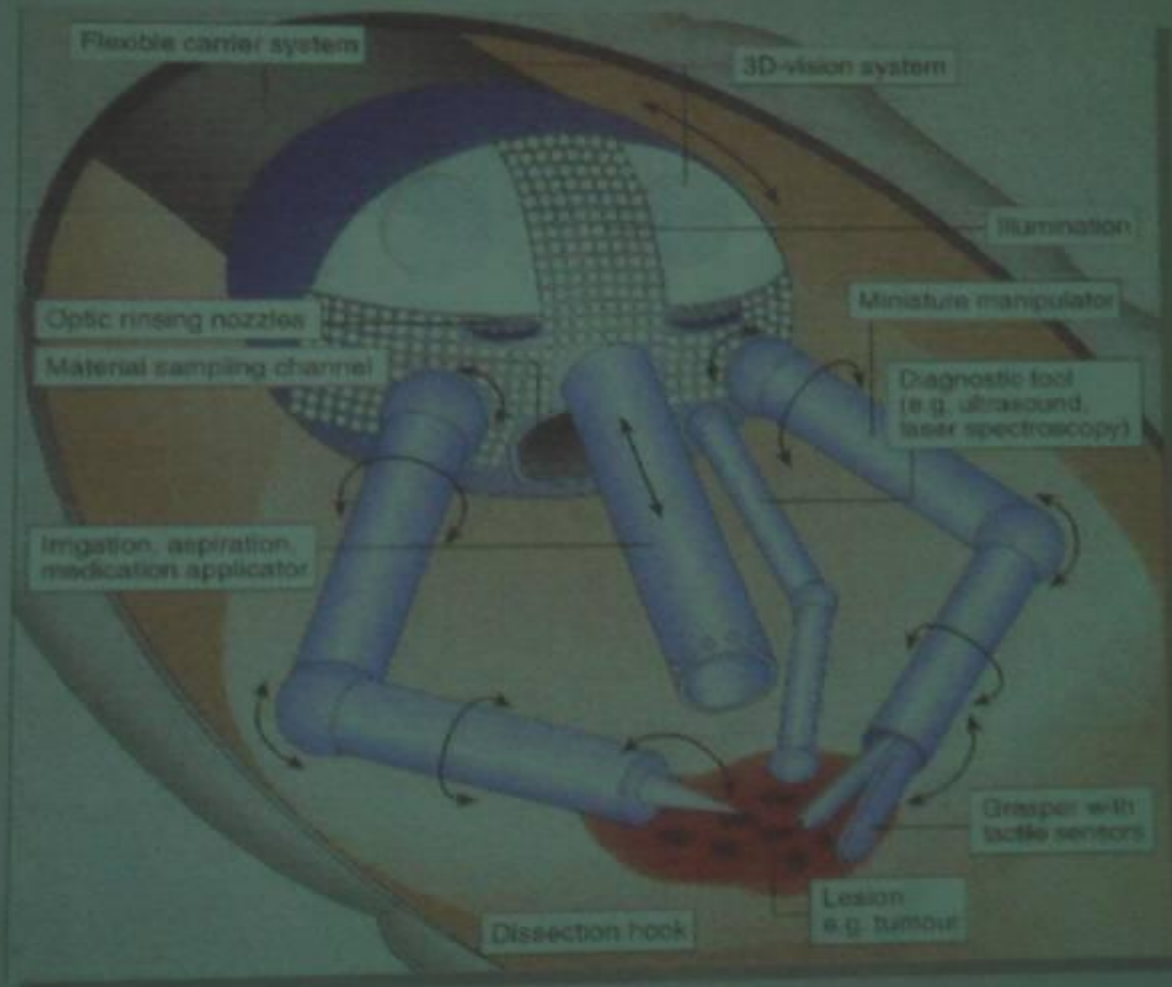
COLON - NOTES



NOTES – под грифом «NO Photo...»

Drivers of change

The goal of single port surgery R&D is to produce flexible multifunctional devices with tools for diagnosis, surgical manipulation and application of drugs



Thank you!!



**Stay Together.. Support each other...
Move with Direction**

ПОМОГАЯ ДРУГ ДРУГУ БУДЕМ ДВИГАТЬСЯ ВПЕРЁД ...

СПАСИБО ЗА ВНИМАНИЕ И ТЕРПЕНИЕ!

N.O.T.E.S.



N.O.T.E.S.